PROROUTE

H820 / H685

QUICK START GUIDE

SUPPORT

Please contact your hardware supplier in the first instance for support.

WARRANTY

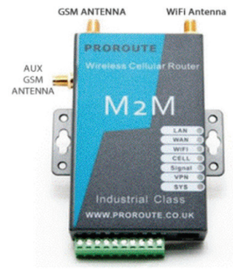
All Proroute routers are covered by a 12 month return to base warranty.

PROROUTE H820 / H685 QUICK START

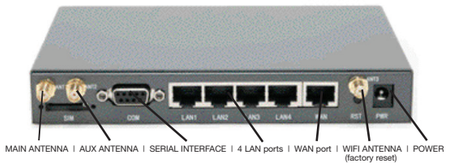
Thank you for your purchase. We have included in this quick start guide the basics of getting your router connected to the Internet and configure basic services. For full installation instructions and help guides and videos please visit the support section at www.proroute.co.uk.

PRODUCT DESCRIPTION

PROROUTE H685 3G/4G ROUTER



PROROUTE H820 3G/4G ROUTER



STEP 1

INSERT SIM (Ensure Power is OFF)

PROROUTE H685 (3G and 4G)

- Remove SIM cover by unscrewing the two retaining screws.
- Lift SIM holder, insert SIM and push SIM holder into place.
- Replace SIM cover and screws.

PROROUTE H820 (3G and 4G)

- Remove SIM cover
- Insert SIM into slot (connector side down, cut-off corner in first) – Push in ALL the way and you will hear a small click and then release SIM – the SIM should remain in place. It helps to use a pen or screwdriver to ensure it is pushed in all the way. To remove SIM – press in and it will pop out.
- Replace SIM cover and screws.

STEP 2

CONNECT ANTENNAS (Ensure Power is OFF)

Connect Cellular Antennas and Wi-Fi antenna (if needed). Cell antennas connect to ANT1 (Main) and ANT2 (Aux) and the Wi-Fi antenna to ANT3. The supplied antennas are for internal use only. We recommend using the Mag Mount Antennas supplied for best performance but if installing the unit in a very good signal location then the optional stick type antennas may be used.

The Mag Mount antennas will need to be fixed in a horizontal position on a metal surface at least 30cm square and if using the MAIN and AUX antennas these should be placed at least 60cm apart. If you are unable to correctly install the Magnetic Antennas then we suggest using the stick antennas for optimum performance.

Note: Please note the comments at Point 6 relating to operational environment.

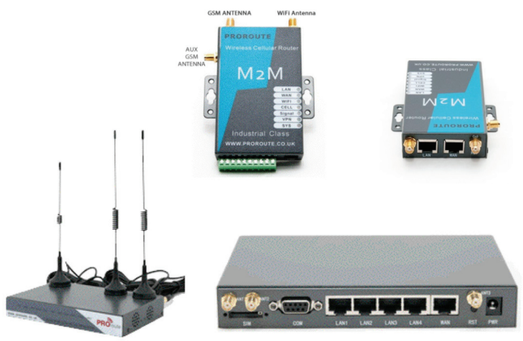
STEP 3

POWER ON THE ROUTER

Once you have inserted the SIM card and connected the antennas you are now ready to power up the unit. Simply connect the power adapter, plug into the mains and power on.

The router will take about two minutes to complete the start-up process before you will be able to connect to the web browser interface.

The SYS light will flash steadily every 2 seconds – this is normal.



STEP 4

CONNECT YOUR PC TO THE ROUTER AND ACCESS THE WEB INTERFACE

Set your Laptop / PC to obtain an IP address automatically and using an Ethernet / LAN cable (Patch lead) connect to one of the LAN ports of the router.

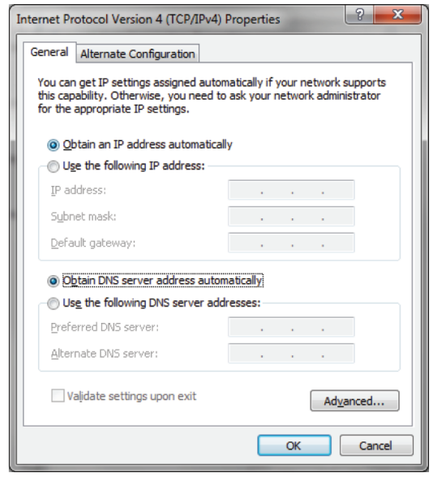
The router will then allocate your PC with an IP address. If you do not receive an IP address please double check that you have connected to a LAN port and not inadvertently connected to a WAN port.

Within the top bar (address bar) of your browser type http://192.168.8.1 hit 'enter' key. This will bring up the administration interface of the Proroute.

Default User name is: admin

Default Password is: admin

ONCE YOU ARE LOGGED INTO THE ROUTER WE RECOMMEND THAT YOU UPGRADE TO THE LASTEST FIRMWARE WHICH CAN BE FOUND AT WWW.PROROUTE.CO.UK WHERE YOU WILL ALSO FIND UPGRADE INSTRUCTIONS.


Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

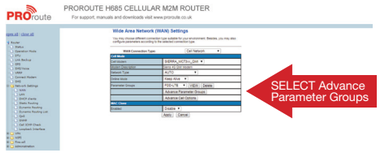
STEP 5

CONFIGURE APN SETTINGS (TO ENABLE INTERNET CONNECTION)

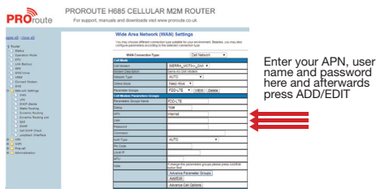
On the menu on the left hand side select ‘Network Settings’ then in the sub menu select ‘WAN’. Then select ‘Advance Parameter Groups’. You will then need to enter APN, User and Password settings which have been given to you by your service provider. If this is a Fixed IP SIM this will come with the instructions. If it is a normal data SIM then you can get these from the mobile operator support services. At this stage do not change any other settings apart from the APN, User name and password.

YOUR ROUTER WILL NOT CONNECT TO THE INTERNET UNLESS YOU CORRECTLY CONFIGURE YOUR APN SETTINGS. FOR THE MOST COMMON UK 4G NETWORK APN SETTINGS PLEASE VISIT WWW.PROROUTE.CO.UK AND VIEW SUPPORT > APN SETTINGS PAGE OR CONTACT YOUR MOBILE SERVICE PROVIDER.

SCREEN SHOT OF NETWORK SETTINGS / WAN PAGE



SCREEN SHOT OF APN SETTINGS PAGE (Advanced Parameter Groups)



When these have been entered correctly select the ‘add/edit’ tab and wait (this will save the settings). When the next page appears select the ‘Apply’ tab (this will write the settings to the module and the router will reboot ant attempt to connect to the internet – this could take 90-120 seconds). If the connection has been successful then the first indication will be an always on CELL Light. At this point you can either connect your web browser and it will load a web page or you can connect back to the admin port via http://192.168.8.1 and check ‘Status’. The ‘Cell Status’ will state ‘UP’ and you will be able to see the ‘system up time’. You will also see ‘Signal’ which has a visual bar and a value. 1 is the lowest and 31 the highest. Normal operational values are between 10 – 25 although the unit may work below 10, it is best to consult local information on cell site locations and if signal strength is low a High Gain Antenna may help the signal.

3 Mobile APN : three.co.uk USER : (leave blank) PASS : (leave blank) If Public IP address required (to use DYNDNS NB : not guaranteed) APN : 3internet USER : (leave blank) PASS : (leave blank)	EE (Everything Everywhere) APN : everywhere USER : (leave blank) PASS : (leave blank) Or APN : three.co.uk USER : eesecure PASS : secure	
Vodafone APN : internet USER : (leave blank) PASS : (leave blank)	O2 APN : idata.o2.co.uk User Name : vertigo Password : password	or APN : mobile.o2.co.uk User Name : o2web Password : password

These are only suggestions of the most commonly used APN settings and not an exhaustive list. If these do not work then you will need to contact your service provider for the APN settings that apply for your particular SIM card, network and tariff. A simple search on Google can also provide additional APN setting information. At this stage, assuming that you have a mobile signal, a live SIM card and correctly inserted and applied your APN settings you should have a connection to the internet. The CELL light will be always ON and the SYS light will flash every second to indicate normal status. The signal light will flash depending upon signal strength.

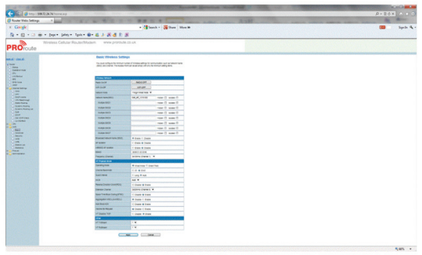
STEP 6

CONFIGURE WIFI SETTINGS

When you first switch on the router the default setting is for the WiFi to be activated without any security so you will need to change your WiFi settings to either switch the WiFi off, or set security to restrict access.

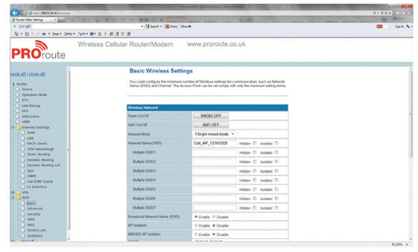
Changing the Router NAME (SSID)

Connect to the Router admin port. Select the ‘WiFi’ item in the menu. Select ‘Basic’.
At this point you can change the SSID of the Router to say something more recognisable for your use like: ‘Proroute’ then select ‘apply’. The unit will then apply the setting and reboot therefore disconnecting your browser and when it resumes the unit will broadcast the new SSID.



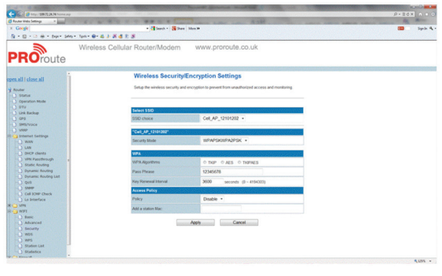
Turning Off the WiFi

To disable the WiFi select ‘Basic’ in the menu. You will see 2 tabs ‘RADIO OFF’ and ‘WiFi OFF’, click on the ‘WiFi OFF’ button (this is a command rather than a status so by clicking on WiFi OFF’ you are telling the router to turn the WiFi off). Select ‘apply’ at the bottom of the screen. At this point the WiFi will be OFF. Reverse this command to turn the WiFi back on.



Changing Security Settings

Under the Wi-Fi menu select ‘security’. Under ‘Security Mode’ select ‘enable’. There are many security options you can use but for an example select: WPA2-PSK and then under the WPA Algorithm select TKIP or AES depending upon your preference. Either will work but it also depends on the devices you are connecting to the Router wirelessly – check with other manufacturers handbooks.
Then set ‘Pass Phrase’ = your own memorable password. 12345678 for example or follow your own password policies for your preference or business policy.
Select ‘Apply’ and the settings will be changed.



STEP 7

PORT FORWARDING

In many instances, Proroute 3G/4G routers are used for M2M applications to provide remove access to devices connected to the LAN of the router. Al long as you have remote access to the router via the 3G or 4G interface (using Fixed IP SIM or DYNDNS) then port forwarding will enable access to devices on the LAN such as IP cameras, DVR’s, PLC’s, web servers, media players or network monitoring / management devices.

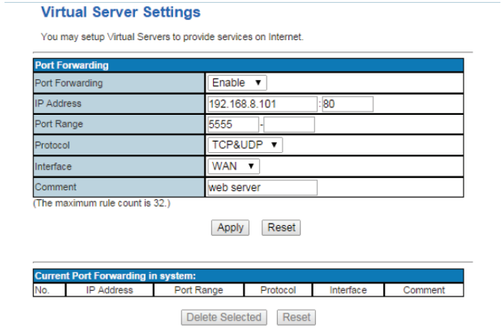
Select ‘Firewall’ in the menu and then ‘Port Forwarding’. At this page select ‘Enable’.

You will then need to input the value of the Internal IP address and the Port Range. For example, if you wanted to connect to a Web Server at Port 80. Input internal IP: 192.168.8.1 and a Port Range of 80 – 80. Then set the external port that you wish to use. Remember – the external port does not always need to match the internal port – you could have external port of 5555 mapping to an internal port of 80.

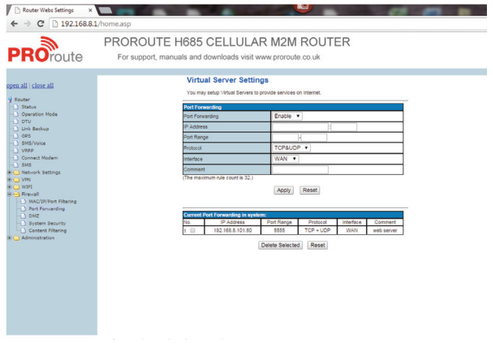
IF YOU SET AN EXTERNAL PORT OF 80 THIS WILL OVERRIDE THE ROUTERS WEB INTERFACE AND YOU WILL NOT BE ABLE TO REMOTELY ACCESS THE ROUTER WEB CONFIGURATION – IN THIS INSTANCE WHERE YOU WANT TO USE PORT 80 IN YOUR PORT FORWARDING RULES YOU WILL NEED TO CHANGE THE ROUTER WEB MANAGEMENT PORT IN MANAGEMENT SETTINGS EG. PORT 8080

Once you have entered your Port forwarding settings select **APPLY.**

If you then select the Fixed IP address (xxx.xxx.xxx.xxx:5555) of the device within the Internet you will automatically connect to the Web Server/DVR etc. connected to the Router. In the following example we have set up port forwarding for a web server that uses port 80. The LAN IP address of the web server is 192.168.8.1 and we are using port 5555 as the external port.


Virtual Server Settings
You may setup Virtual Servers to provide services on Internet.
Port Forwarding
Port Forwarding Enable
IP Address 192.168.8.101 :80
Port Range 5555 -
Protocol TCP&UDP
Interface WAN
Comment web server
(The maximum rule count is 32.)
Apply Reset
Current Port Forwarding in system:
No. IP Address Port Range Protocol Interface Comment
Delete Selected Reset

Once you have pressed APPLY then the port forwarding rule will be set and you can view all the port forwarding settings in the table below, shown in the following screen shot.


192.168.8.1/home.asp
PROROUTE H685 CELLULAR M2M ROUTER
For support, manuals and downloads visit www.proroute.co.uk
Virtual Server Settings
You may setup Virtual Servers to provide services on Internet.
Port Forwarding
Port Forwarding Enable
IP Address
Port Range
Protocol TCP&UDP
Interface WAN
Comment
(The maximum rule count is 32.)
Apply Reset
Current Port Forwarding in system:
No. IP Address Port Range Protocol Interface Comment
1 192.168.8.101:80 5555 TCP + UDP WAN web server
Delete Selected Reset

You can set up to 32 port forwarding rules if required.

OPERATIONAL CONSIDERATIONS

The performance of the device is totally dependent on the location and strength of the signal in the operational area. The location of the Antenna is probably the most critical consideration and understanding which operators offer the optimum signal strength in the area. For example, you can use the Ofcom Site Finder web site at: http://www.sitefinder.ofcom.org.uk/search to check availability in your area and also check with your 3G / 4G LTE service provider for information on which services are available in your location.

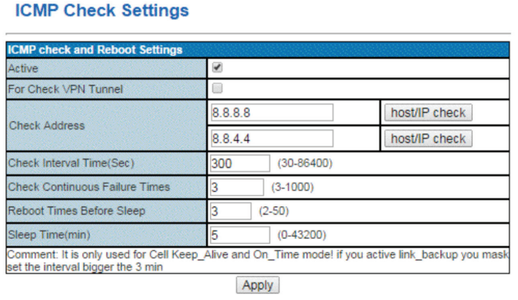
Speed of the mobile broadband connection will depend upon several factors including distance to the base station, atmospheric conditions, number of simultaneous users on the base station and network bandwidth availability and service level agreements for your particular service.

3G/4G Network Availability
Mobile broadband is always thought of as an ‘always on’ service, when it reality it is an ‘always available’ service. This means that when you need to make a connection it will ‘handshake’ with your device and permit the session. 3G / 4G routers that are always connected and expect an always on connection cause a problem for the mobile providers because they have limited availability at the base station so they end up disconnecting devices to enable new connections for other users. However the base station needs to know which devices will potentially connect so it still communicates with the router and tells the router that the base station and connection is available, however the base station will not pass through any internet traffic, so at this point the router thinks it is connected because it can see the base station, but is unable to communicate with the internet. To get around this, Proroute (and most other M2M router manufacturers) use a failsafe mechanism called Ping Reboot (Cell ICMP check) to check that the router has a connection to the internet and not just the local base station. In the event that the internet connection is unavailable then the router will reboot and re-establish the connection, thus preventing expensive and time consuming trips to site to reboot the router. As a secondary backup to the ping reboot feature, the Proroute routers also feature SMS reboot so you can reboot your router remotely using GSM which does not rely on a 3G/4G internet connection.

3G/4G Speeds
Speeds will vary depending upon several factors including service type (3G/4G), carrier, distance to base station, atmospheric conditions, location of router / antennas, numbers of users and load on base station and bandwidth availability policies of the networks. This means that download speeds can change by the minute so a good way to get an average is to perform at least 30 speed tests over a one hour period at the busiest time of the day which is usually 4:00PM.

DON’T FORGET TO SET YOUR PING REBOOT TO ENSURE A RELIABLE, ALWAYS ON CONNECTION.
CLICK ON INTERNET SETTINGS > CELL ICMP CHECK

Tick ACTIVE, and then enter two IP addresses for the router to ping. We use Google Public DNS servers (8.8.8.8 and 8.8.4.4) because we assume that these should be available 24/7/365. Of course if your router is on a private network and cant access the public internet you will need to use different IP addresses. We recommend a Check Interval Time of 300 seconds (5 Minutes).


ICMP Check Settings
ICMP check and Reboot Settings
Active
For Check VPN Tunnel
Check Address 8.8.8.8 host/IP check
8.8.4.4 host/IP check
Check Interval Time(Sec) 300 (30-86400)
Check Continuous Failure Times 3 (3-1000)
Reboot Times Before Sleep 3 (2-50)
Sleep Time(min) 5 (0-43200)
Comment: It is only used for Cell Keep_Alive and On_Time mode! if you active link_backup you mask set the interval bigger the 3 min
Apply